

I. AMENDMENTS TO THE CLAIMS

Claim 1. (Previously Presented) A substantially purified nucleic acid molecule that encodes a maize or soybean phosphogluconate pathway enzyme or fragment thereof, wherein said maize or soybean phosphogluconate pathway enzyme is selected from the group consisting of:

- (a) glucose-6-phosphate-1-dehydrogenase;
- (b) D-ribulose-5-phosphate-3-epimerase; and
- (c) phosphoglucoisomerase;

wherein said substantially purified nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOS: 1, 225, 619 and complements thereof.

Claims 2 to 10 (Canceled)

Claim 11. (Previously Presented) An isolated nucleic acid molecule, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOS: 1, 4, 14, 27, 225, 298, 311, 356, 569, and 619 or complements thereof.

Claim 12. (Previously Presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 1 or complement thereof.

Claim 13. (Previously Presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 4 or complement thereof.

Claim 14. (Canceled)

Claim 15. (Previously Presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 27 or complement thereof.

Claim 16. (Previously Presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 225 or complement thereof.

Claim 17. (Previously Presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 298 or complement thereof.

Claim 18. (Previously Presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 311 or complement thereof.

Claim 19. (Previously Presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 356 or complement thereof.

Claim 20. (Previously Presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 569 or complement thereof.

Claim 21. (Previously Presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 619 or complement thereof.

Claim 22. (Previously Presented) A substantially purified nucleic acid molecule that encodes a maize or soybean 6-phosphogluconate dehydrogenase or fragment thereof, comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 14, 27 and complements thereof.

Claim 23. (Canceled)

Claim 24. (Previously Presented) A substantially purified nucleic acid molecule that encodes a maize or soybean phosphogluconate pathway enzyme or fragment thereof, wherein said maize or soybean phosphogluconate pathway enzyme is selected from the group consisting of:

- (a) glucose-6-phosphate-1-dehydrogenase;
- (b) D-ribulose-5-phosphate-3-epimerase;
- (c) ribose-5-phosphate isomerase; and
- (d) transaldolase;

wherein said substantially purified nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 4, 298, 311, 569 and complements thereof.

Claims 25 to 27. (Canceled).

Claim 28. (Previously Presented) A substantially purified nucleic acid molecule that encodes a maize transketolase enzyme or fragment thereof comprising a nucleic acid sequence of SEQ ID NO: 356 or complement thereof.

Claim 29. (Canceled)

Claim 30. (Previously Presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 14 or complement thereof.

Claim 31. (Previously Presented) An isolated nucleic acid molecule, wherein said nucleic acid molecule consists of a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 14, 27, 225, 298, 311, 356, 569, and 619 or complements thereof.

Claim 32. (Withdrawn) A transformed plant having a nucleic acid molecule which comprises:

- (A) an exogenous promoter region which functions in a plant cell to cause the production of a mRNA molecule;
- (B) a structural nucleic acid molecule comprising a nucleic acid molecule of claim 1; and
- (C) a 3' non-translated sequence that functions in said plant cell to cause termination of transcription and addition of polyadenylated ribonucleotides to a 3' end of said mRNA molecule.

Claim 33. (Withdrawn) A transformed plant having a nucleic acid molecule which comprises:

- (A) an exogenous promoter region which functions in a plant cell to cause the production of a mRNA molecule;

- (B) a structural nucleic acid molecule comprising a nucleic acid molecule of claim 24; and
- (C) a 3' non-translated sequence that functions in said plant cell to cause termination of transcription and addition of polyadenylated ribonucleotides to a 3' end of said mRNA molecule.

Claim 34. (Withdrawn) A host cell comprising a recombinant nucleic acid molecule having the nucleic acid molecule of claim 1.

Claim 35. (Withdrawn) The host cell of claim 34, wherein said host cell is a plant cell.

Claim 36. (Withdrawn) A transgenic plant comprising the host cell of claim 34.

Claim 37. (Withdrawn) A host cell comprising a recombinant nucleic acid molecule having the nucleic acid molecule of claim 24.

Claim 38. (Withdrawn) The host cell of claim 37, wherein said host cell is a plant cell.

Claim 39. (Withdrawn) A transgenic plant comprising the host cell of claim 37.